

CLAIMS:

1. A saw comprising:

a blade configured to move to cut a work piece, where the blade includes a cutting edge;

5 a motor adapted to move the blade;

a detection system adapted to detect contact between a person and the blade while the blade is moving and to distinguish that contact from contact between green wood and the blade by imparting a signal to the blade and monitoring that signal for a predetermined rate of change indicative of contact with a person; and

10 a replaceable brake cartridge adapted to stop the blade when the detection system detects contact between a person and the blade, the brake cartridge including:

a housing;

a brake pawl pivotally connected with the housing and having a blade-contact surface;

15 a biasing mechanism at least partially enclosed by the housing and adapted to urge the brake pawl to pivot relative to the housing; and

a release mechanism at least partially enclosed by the housing and adapted to release the brake pawl to pivot relative to the housing under the urging of the biasing mechanism when the detection system detects contact between a person and the blade;

20 where the brake cartridge is positioned in the saw so that the blade-contact surface can pivot into contact with the cutting edge of the blade to stop the blade.

2. The saw of claim 1, further comprising a frame supporting the blade, and where the blade is electrically isolated from the frame.

5 3. The saw of claim 1 where the detection system is adapted to capacitively impart an electric signal on the blade and to detect the occurrence of a determined change in the signal.

4. The saw of claim 1, where the biasing mechanism includes a spring
10 configured to pivot the brake pawl.

5. The saw of claim 1, where the release mechanism includes a fuse wire that is melted upon detection of contact between the person and the blade.

15 6. The saw of claim 1, where the detection system is capacitively coupled to the blade.

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7. The saw of claim 6, where the capacitive coupling between the detection system and the blade includes a drive electrode and a sense electrode.

8. The saw of claim 1, further including a control system adapted to monitor the detection system and control actuation of the release mechanism.

9. The saw of claim 8, where the control system is adapted to shut off the motor when contact between a person and the blade is detected.

10. The saw of claim 8, where the control system is adapted to verify that the brake cartridge is in the saw before power is supplied to the motor.

11. The saw of claim 8, where the control system is adapted to test the operability of the release mechanism.

12. The saw of claim 8, where the control system is adapted to verify the brake cartridge is positioned in the saw so that the blade-contact surface can pivot into contact with the cutting edge of the blade to stop the blade.

13. The saw of claim 1 where the blade is circular and the blade-contact surface is spaced radially outward from the cutting edge of the blade when the brake cartridge is positioned in the saw.

14. The saw of claim 1, where the machine is a table saw.

15. The saw of claim 1, where the machine is a miter saw.

5 16. The saw of claim 1, where the machine is a radial arm saw.

17. The saw of claim 1, where the machine is a circular saw.

18. The saw of claim 1, where the machine is a hand-held circular saw.

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19. The saw of claim 1, further including electronics associated with the release mechanism, where the electronics are enclosed within the housing.

20. The saw of claim 1, where the housing is sealed against the entry of
15 sawdust.